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terminate fatally with more or less rapidity, according to the size of the animal.

“Della Velocità del Vento. Memoria diretta alla Regali Società di Londra per essere inscritta nelle Transazioni filosofiche, et pel concorso del premio annuale di fisica : di Luigi Dau, Dottore in Matematica e Fisica.” Communicated by Charles Konig, Esq. For. Sec. R.S.

The author endeavours to investigate the relation which he believes exists between the velocity of the wind and the oscillations of the barometer, and thence to derive rules for calculating the former from observations of the latter.

“Considérations physiques sur le passage Nord-ouest;” by the same. Communicated by the Right Hon. the Earl of Minto, G.C.B. F.R.S.

The author of this memoir, considering that the practicability of a North-west Arctic passage must depend on the mean summer atmospheric temperature of the most northern point of the continent of America being above that at which the congelation of sea water takes place, applies himself to the determination of these temperatures. The results of his calculations are given in a table, exhibiting the extreme and the mean temperatures of the atmosphere for each of the summer months, from May to September, at all degrees of latitude, from  $60^{\circ}$  to  $80^{\circ}$  inclusive. According to this table, the temperature of zero, which is about the freezing point of sea water, prevails, at  $60^{\circ}$  of latitude, on the 10th of May ; at  $61^{\circ}$  lat. on the 20th of May ; at  $63^{\circ}$ , on the 1st of June ; at  $65^{\circ}$ , on the 10th of June ; at  $67^{\circ}$ , on the 20th of June ; and at  $71^{\circ}$ , during the whole of the months of July and August. The author concludes that navigators can reach, without danger of being obstructed by ice, the latitude of  $71^{\circ}$  during these latter months : and that since the American continent does not probably extend beyond  $70^{\circ}$  north latitude a passage to the North-west is then open. He recommends, however, that instead of attempting it by the dangerous navigation of the polar sea, a coasting voyage between the continent and the numerous islands which exist in that ocean should be undertaken ; or, what he thinks still more promising of success, an expedition by land for exploring the country intervening between the Coppermine River and Hudson’s Bay.

“Causes de la Variation diurne de l’Aiguille aimantée, de la Lumière zodiacale, des Aurores Boreales, et Méthode simplifiée pour le relevement des Longitudes, Mémoire soumis à la Société Royale de Londres, pour le concours du prix d’Astronomie.” Par Demonville.

The author’s speculations proceed on the hypothesis he has adopted, that the Sun, Moon, Jupiter and Mars perform a diurnal and perfectly circular revolution round the earth.

“On the elementary structure of the Muscular Fibre of Animal and Organic Life ;” by Frederic C. Skey, Esq., Assistant Surgeon to St. Bartholomew’s Hospital, F.R.S.

The author having withdrawn the paper bearing the same title

which he had formerly communicated, and which was read to the Society on the 9th and 16th of February last; and having made in it several alterations and additions, consisting chiefly in notices of the discoveries of preceding anatomists in the same field of inquiry, again presents it to the Society with these improvements.

"Sequel to an Essay on the Constitution of the Atmosphere published in the Philosophical Transactions for 1826; with some account of the Sulphurets of Lime;" by John Dalton, D.C.L., F.R.S.

The author communicates in this paper an account of the investigations on the constitution of the atmosphere, which have engaged his attention during a long period of years. He enters into an examination of the comparative advantages of the three methods which are most in use for analysing common air, namely, firing it with hydrogen in Volta's eudiometer, or abstracting the oxygen by means of nitrous gas and quadrisulphuret of lime; and details the precautions to be taken in the employment of each of these methods, and the degree of accuracy to be expected from the results under different circumstances. He then relates numerous experiments made on air obtained from great heights, from which he is led to the conclusion that the proportion of oxygen to azote in the atmosphere on the surface of the earth is not precisely the same at all places and times; and that in elevated regions this proportion is somewhat less than at the surface of the earth, but not nearly so much as the theory of mixed gases would require, and that the reason for this is to be found in the incessant agitation of the atmosphere produced by winds and other causes.

"Researches on the Tides. Eighth Series. On the progress of the Diurnal Inequality-wave along the coasts of Europe." By the Rev. William Whewell, F.R.S., &c.

In the seventh series of these researches, the author pointed out the laws which the diurnal inequality of the height of high water follows, and showed that those laws are modified so as to exhibit very remarkable differences at different places, and to occasion some difficulty in conceiving the mechanical propagation of the tide-wave. He then suggested what appeared to be a possible solution of the difficulty; but as this suggestion was founded on facts from a few places only, he resolved to attempt to trace the progress of the wave which brings the diurnal inequality on some of the coasts, on which simultaneous observations were made at his request in June 1835; and the present memoir contains an account of the conclusions to which he has been led by this investigation. The details which he gives of the observations made, with this view, at nineteen different stations, appear to establish the conclusion, that the differences of diurnal inequalities at different places are governed by local circumstances, and do not form a progressive series.

"Note on the Fluctuations of the Height of High-water due to changes in the Atmospheric Pressure." By J. W. Lubbock, Esq., F.R.S.